North Coast Unified
Air Quality Management District

Air Monitoring Network Assessment and Plan - 2010

NCUAQMD
2300 Myrtle Ave
Eureka, Ca 95501

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Definition of Terms

AQS: Air Quality System
ARB: Air Resources Board
E-BAM: Emergency Beta-Attenuation Monitor
FEM: Federal Equivalency Method
FRM: Federal Reference Method
MSA: Micropolitian Statistical Area
NAAQS: National Ambient Air Quality Standards
NOAA: National Oceanographic and Atmospheric Administration
NCUAQMD: North Coast Unified Air Quality Management District
SIP: State Implementation Plan
SLAMS: State and Local Air Monitoring Site

Executive Summary

The District maintains a network of air pollution monitoring equipment throughout the North Coast. The network has developed slowly, beginning in 1986 with a solitary PM10 monitoring station. Currently there are four stations in operation, and a fifth location is expected to come on line the summer of 2010. This document combines the annual Network Plan with the Network Assessment Plan. The purpose is to provide a review of the current status of monitoring within NCUAQMD, and evaluate that network. Future plans for developing the network further are discussed in detail.

NCUAQMD is located in the far northwestern portion of California. It is comprised of three counties: Humboldt, Del Norte, and Trinity, which together cover 7,753 square miles. It is bordered on the west by the Pacific Ocean and extends from the Oregon Border south approximately 140 miles to the Mendocino County line. Eureka, the county seat of Humboldt County, is 284 miles north of San Francisco, 466 miles south of Portland, Oregon and on the coast of the Pacific Ocean. Inversions and diurnal offshore wind patterns are common. The area is made up of extremely complex terrain, from coastal wetlands to rugged mountains.

Major sources located in the Humboldt Bay region (Eureka, Arcata) include the Freshwater Pulp Mill, Fairhaven Power Plant, and PG&E's Humboldt Bay Power Plant. The first two sources are located on the Samoa Peninsula just east of Eureka. The PG&E plant is located just south of Eureka. Near the City of Arcata, a few miles north of Eureka, is the Humboldt Flake Board Plant, a particleboard manufacturing facility. Hambro Flake Board operates in Crescent City.

In addition to these Title 5 sources, NCUAQMD is impacted by mobile and large industrial sources. The District is also impacted by wood smoke in the winter and agricultural crop residue burning and wild fires in the summer.

The air monitoring network of the NCUAQMD has been thoroughly assessed. It has been found that all current monitoring instruments are needed and well located. The most pressing current needs for better monitoring are for continuous particulate matter instruments and an increased cash of EBAMS.

Network Plan

Overview of Network Operation

Network Design.

The North Coast Unified Air Quality Management District operated 4 monitoring sites in 2009. The following maps show the locations of the monitoring sites. Tables 1 and 2 list the pollutants measured at each site.

Table 1. List of Special Purpose Monitoring Sites

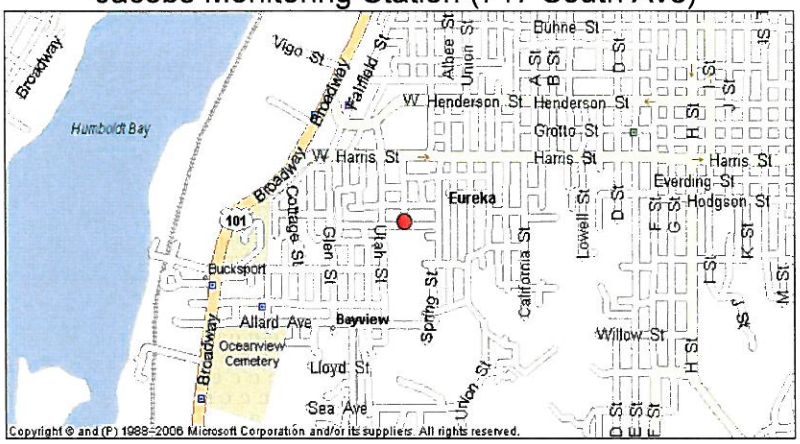
Site	Site Name	Pollutant Monitored
A	Jacobs	PM_{10}, $PM_{2.5}$, O_3, NO_2, CO, SO_2

Table 2. List of State and Local Air Monitoring Sites

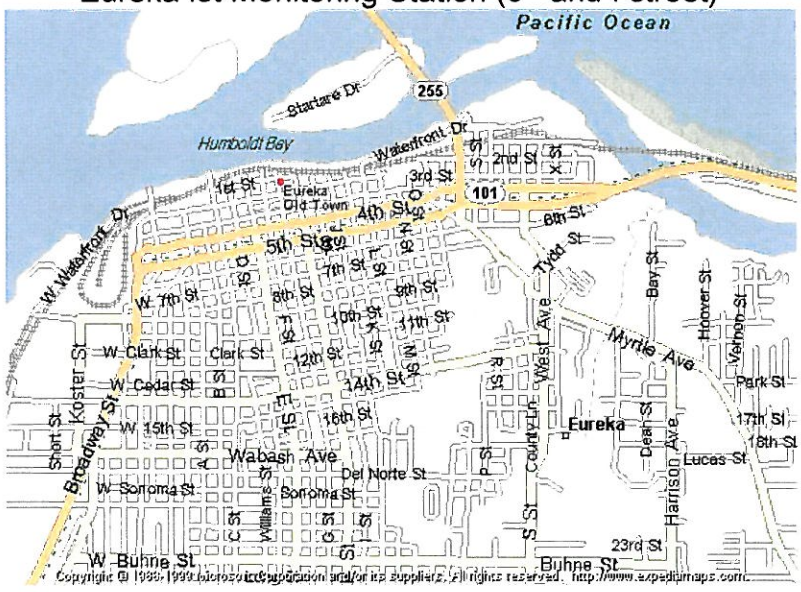
Site	Site Name	Pollutants Monitored
B	Eureka Ist	PM_{10}, $PM_{2.5}$
C	Weaverville	PM_{10}, $PM_{2.5}$
D	Crescent City	PM_{10}

Maps of Monitoring Station Locations

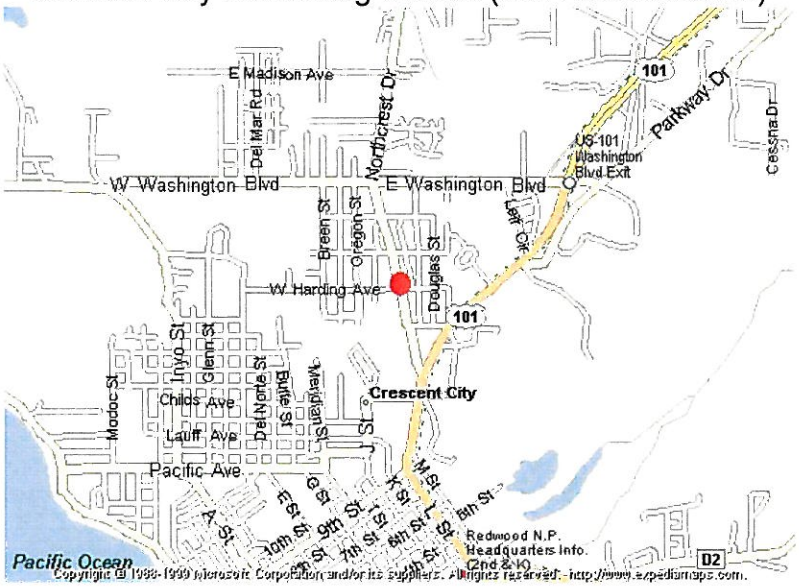
Jacobs Monitoring Station (717 South Ave)



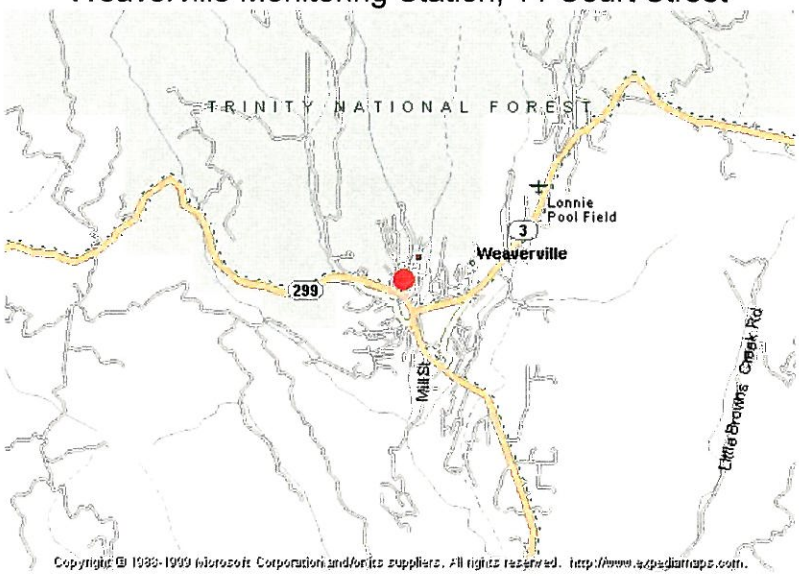
Eureka Ist Monitoring Station (6th and I street)



Crescent City Monitoring Station (880 Northcrest Dr.)



Weaverville Monitoring Station, 11 Court Street



Minimum Monitoring Requirements.

This network meets the minimum monitoring requirements for all criteria pollutants (Tables 3-9).

Ozone

Table 3. Minimum Monitoring Requirements for Ozone.

Micropolitian Statistical Area	County	Pop. In Year 2000	4th highest 8-hour max. (ppm) (2007-2009)	Monitors Required	Active Monitors	Monitors Needed
Eureka-Arcata-Fortuna	Humboldt	126,518	0.047	0	1	0
Crescent City	Del Norte	27,507	-	0	0	0
none	Trinity	13,022	-	0	0	0

No monitors are required for either a SIP or Maintenance Plan. The NCUAQMD monitors Ozone as an examination of population exposure levels.

PM 2.5

Table 4. Minimum Monitoring Requirements for $PM_{2.5}$.

Micropolitian Statistical Area	County	Pop. In Year 2000	Annual Design Value (ug/m^3) (2007-2009)	Daily Design Value (ug/m^3) (2007-2009)	Monitors Required	Monitors Active	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	126,518	I street 7.2	I street 23.6	0	2	0
			Jacobs 7.3	Jacobs 23.6			
Crescent City	Del Norte	27,507		-	0	0	0
none	Trinity	13,022		-	0	1	0

No monitors are required for either a SIP or Maintenance Plan. The NCUAQMD participates in the Federal Fine Particulates monitoring program by operating a sampler at the Eureka Ist station. The NCUAQMD monitors $PM_{2.5}$ at the Jacobs site monitoring station as an examination of population exposure. Both Humboldt County $PM_{2.5}$ monitors are FRMs suitable for national comparison. The NCUAQMD monitors $PM_{2.5}$ in Trinity County for an examination of population exposure. This monitor is not an FRM. It

began operation in May 2009, thus to date it has not obtained enough data to calculate an annual design value, nor a daily design value.

PM 10

Table 5. Minimum Monitoring Requirements for PM_{10}.

Micropolitian Statistical Area	County	Population in Year 2000	Max Concentration (2007-2009) (ug/m^3)	Monitors Required	Monitors Active	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	126,518	I street 54 Jacobs 61	1	2	0
Crescent City	Del Norte	27,507	49	1	1	0
none	Trinity	13,022	301	1	1	0

NCUAQMD is non-attainment for the State PM_{10} standard. For our maintenance plan we are required by the State of California to operate a sampler in each of the three counties on a 1 in 6 schedule. NCUAQMD also operates a fourth sampler in Eureka, to examine population exposure more closely.

NO2

Table 6. Minimum Monitoring Requirements for NO_2.

Micropolitian Statistical Area	County	Pop. in Year 2000	Annual Design Value (ppm) (2007-2009)	Monitors Required	Active Monitors	Monitors Needed
Eureka-Arcata, Fortuna	Humboldt	126,518	0.0031	0	1	0
Crescent City	Del Norte	27,507	-	0	0	0
none	Trinity	13,022	-	0	0	0

No monitors are required for SIP or Maintenance Plans. NCUAQMD is not required to monitor NO_2. NCUAQMD monitors NO_2 at the Jacobs Station to examine population exposure.

SO2

Table 7. Minimum Monitoring Requirements for SO_2.

Micropolitian Statistical Area	County	Pop. in Year 2000	Annual Design Value (ppm) (2007-2009)	Max 24 hour (ppm) (2007-2009)	Max 3 hour (ppm) (2007-2009)	Monitors Required	Active Monitors	Monitors Needed
Eureka-Arcata, Fortuna	Humboldt	126,518	0.001	0.003	0.008	0	1	0
Crescent City	Del Norte	27,507	-	-		0	0	0
none	Trinity	13,022	-	-		0	0	0

No monitors are required for SIP or Maintenance Plans. The NCUAQMD is not required to monitor SO_2. NCUAQMD monitors SO_2 at the Jacobs Site Station to examine population exposure.

CO

Table 8. Minimum Monitoring Requirements for CO.

Micropolitian Statistical Area	County	Pop. in Year 2000	8-hour Design Value (ppm) (2007-2009)	1 hour. Design Value (2007-2009)	Monitors Required	Active Monitors	Monitors Needed
Eureka-Arcata-Fortuna	Humboldt	126,518	1.3	2.0	0	1	0
Crescent City	Del Norte	27,507	-	-	0	0	0
none	Trinity	13,022	-	-	0	0	0

No monitors are required for SIP or Maintenance Plans. The NCUAQMD is not required to monitor CO. NCUAQMD monitors CO at the Jacobs Site Station to examine population exposure.

Pb

Table 9. Minimum Monitoring Requirements for Pb.

MSA	County	Pop. In Year 2000	Annual Design Value (years)	Monitors Required	Active Monitors	Monitors Needed
Eureka, Arcata, Fortuna	Humboldt	126,518	-	0	0	0
Crescent City	Del Norte	27,507	-	0	0	0
none	Trinity	13,022	-	0	0	0

No monitors are required for SIP or Maintenance Plans. The NCUAQMD is not required to monitor Pb and does not do so.

Quality Control

All NCUAQMD ambient air monitoring meets stringent ARB Quality Control and Quality Assurance requirements. ARB audit records and site information for NCUAQMD can be found on the ARB website at http://www.arb.ca.gov/aaqm/qmosqual/qmosqual.htm. If you desire audit information, and do not have access to the web, please contact NCUAQMD directly at (707) 443-3093.

Recent or Proposed Modifications to Network

A new special purpose monitoring station located on Humboldt Hill, Eureka, is slated to begin operation during the summer of 2010. This station is designed to meet a permit requirement of the newly designed Pacific Gas and Electric plant, which is located at the foot of Humboldt Hill. The new station will monitor O3, NO2, SO2, CO, NH3, PM10, PM2.5, air toxics, wind direction, wind speed, temperature, pressure, and rH.

Review of Changes to PM2.5 Monitoring Network

The NCUAQMD has not changed the location of any violating PM2.5 monitor. Any changes to the NCUAQMD's PM2.5 network are reviewed by EPA Region 9's review process. NCUAQMD has never removed a PM2.5 monitor, and has added two monitors since the inception of its 2.5 monitoring program. If a violating PM2.5 monitor ever needed to be moved, we would use the annual network plan inspection/comment process to provide for the review of this change.

Data Submission Requirements

Precision/Accuracy reports are submitted to the ARB no later than 60 days after the quarter of record. The ARB uploads NCUAQMD data to AQS no later than 90 days after the quarter of record. The ARB submits the annual data certification no later than May each year.

Data Availability

NCUAQMD air quality data is available on the National Air Quality System (AQS) database. It can also be obtained directly from NCUAQMD, in the form of monthly or yearly reports. Please contact NCUAQMD at 707-443-3093 to request copies of these reports.

Detailed Site Information

Site Name: Jacobs

The Jacobs site was established in December of 2006 it is located on the South side of Eureka and is expected to represent neighborhood scale air quality.

Site Name	Jacobs					
AQS ID	060231004					
GIS coordinates	103.91015E 4514.83731N WGS84					
Location	Alice Birney Elementary School					
Address	717 South Ave, Eureka					
County	Humboldt					
Dist. to road	50 meters					
Traffic count	3100 AADT					
Groundcover	grass					
PEP audit?	Information maintained by EPA					
NPAP audit?	Information maintained by EPA					
Flow audit?	Performed monthly					
Representative Area	Humboldt County Micropolitian Statistical Area, Eureka-Arcata-Fortuna, suburban					
Pollutant	O3	NO2	CO	SO2	PM2.5	PM10
Monitor objective	Typical Concentration	Typical Concentration	Typical Concentration	Typical Concentration	Typical Concentration	Typical Concentration
Spatial scale	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood	Neighborhood
Sampling method	Photometric EQOA-0880-047	Chemiluminescence RFNA-1289-074	Gas Filter correlation RFCA-0981-054	Pulsed Florescence EQSA-0486-060	Low Volume RFPS-0498-117	High Volume RFPS-1287-063
Analysis method	N/A	N/A	N/A	N/A	Weighed by BAAQMD	Weighed by NCUAQMD
Start date	Dec 15, 2006	Dec 15, 2006	Dec 15, 2006	Dec 15, 2006	Dec 25, 2006	Dec 15, 2006
Operation schedule	continuous	continuous	continuous	continuous	1:3 Oct-Mar 1:6 Apr-Sept	1:3 Oct-Mar 1:6 Apr-Sept
Sampling season	Year round	Year round	Year round	Year round	Year round	Year round
Probe height	4.5 meters	4.5 meters	4.5 meters	4.5 meters	N/A	N/A
Distance from supporting structure	1.9 meters	1.9 meters	1.9 meters	1.9 meters	N/A	N/A
Distance from obstructions on roof	N/A	N/A	N/A	N/A	N/A	N/A
Distance from obstructions not on roof	19 meters	19 meters	19 meters	19 meters	19 meters	19 meters
Distance from trees	15 meters	15 meters	15 meters	15 meters	15 meters	17 meters

Pollutant	O3	NO2	CO	SO2	PM2.5	PM10
Distance to furnace or incinerator flue	N/A	N/A	N/A	N/A	N/A	N/A
Distance between collocated monitors	N/A	N/A	N/A	N/A	N/A	N/A
Unrestricted airflow	360 degrees	360 degrees	360 degrees	360 degrees	360 degrees	360 degrees
Probe material	Teflon	Teflon	Teflon	Teflon	N/A	N/A
Residence time	9.6 seconds	9.6 seconds	5.5 seconds	11.4 seconds	N/A	N/A
Will there be changes within the next 18 months?	No	No	No	No	No	No
Is it suitable for comparison against the annual PM2.5?	N/A	N/A	N/A	N/A	Yes	N/A

Site Name: Eureka I Street

The Ist site was established in 1986. It is located downtown Eureka near HWY 101 and is expected to represent neighborhood scale air quality.

Site Name	Eureka Ist			
AQS ID	060231002			
GIS coordinates	103.92619E 4517.39332N WGS84			
Location	Humboldt County Health Department			
Address	529 Ist, Eureka			
County	Humboldt			
Dist. to road	9 meters to 6th St, 30 meters to 5th St.			
Traffic count	6th street has ADT of 8,000 , 5th street has ADT of 37,000			
Groundcover	Paved			
PEP audit?	Information maintained by EPA			
NPAP audit?	Information maintained by EPA			
Flow audit?	monthly			
Representative Area	Humboldt County Micropolitian Statistical Area, Eureka-Arcata-Fortuna, Urban			
Pollutant	PM2.5		PM10	
Monitor objective	Typical Concentration		Typical Concentration	
Spatial scale	Neighborhood		Neighborhood	
Sampling method	Low Volume RFPS-0498-117		High Volume RFPS-1287-063	
Analysis method	Weighed by BAAQMD		Weighed by NCUAQMD	
Start date	Jan 1999		Nov 1986	
Operation schedule	1:3 Oct-Mar 1:6 Apr-Sept		1:3 Oct-Mar 1:6 Apr-Sept	
Sampling season	Year round		Year round	
Probe height	6 meters		6 meters	
Distance from supporting structure	2 meters		2 meters	
Distance from obstructions on roof	5 meters		5.5 meters	
Distance from obstructions not on roof	25 meters		25 meters	
Distance from trees below probe height	6.5 meters		4.6 meters	
Distance to furnace or incinerator flue	5 meters		5 meters	
Distance between collocated monitors	N/A		N/A	
Unrestricted airflow	270 degrees		270 degrees	
Probe material	N/A		N/A	
Residence time	N/A		N/A	
Will there be changes within the next 18 months?	No		No	
Is it suitable for comparison against the annual PM2.5?		Yes	N/A	

Site Name: Weaverville

The Weaverville site was established in 1995. It is located downtown Weaverville near HWY 299 and is expected to represent neighborhood scale air quality.

Site Name	Weaverville			
AQS ID	061050002			
GIS coordinates	104.95617E 4509.31330N WGS84			
Location	Trinity County Courthouse			
Address	11 Court Street, Weaverville			
County	Trinity			
Dist. to road	7 meters to side road, 21 meters to highway 299			
Traffic count	1408 AADT for Garden Gulch, 2003 data; 2950AADT for HWY 299, 2006 data			
Groundcover	Paved			
PEP audit?	Information maintained by EPA			
NPAP audit?	Information maintained by EPA			
Flow audit?	Bi-monthly			
Representative Area	Rural, no MSA in Trinity County			
Pollutant	PM2.5	PM10		
Monitor objective	Typical Concentration	Typical Concentration		
Spatial scale	Neighborhood	Neighborhood		
Sampling method	BAM1020, non FEM	High Volume RFPS-1287-063		
Analysis method	BAM1020	Weighted by NCUAQMD		
Start date	May 2009	Jan 1995		
Operation schedule	Continuous	1:3 Oct-Mar 1:6 Apr-Sept		
Sampling season	Year round	All year		
Probe height	9.4 meters	7 meters		
Distance from supporting structure	3 meters	1.5 meters		
Distance from obstructions on roof	10 meters	7 meters		
Distance from obstructions not on roof	20 meters	20 meters		
Distance from trees	15 meters	15 meters		
Distance to furnace or incinerator flue	N/A	N/A		
Distance between collocated monitors	N/A	N/A		
Unrestricted airflow	270 degrees	270 degrees		
Probe material	N/A	N/A		
Residence time	N/A	N/A		
Will there be changes within the next 18 months?	No	No		
Is it suitable for comparison against the annual PM2.5?	No	N/A		

Site Name: Crescent City

The Crescent City site was established in 1998. It is located at the Del Norte County Health Department near HWY 101 and is expected to represent neighborhood scale air quality.

Site Name	Crescent City
AQS ID	060150006
GIS coordinates	103.90908E 4624.31858N WGS84
Location	Del Norte County Health Department
Address	880 Northcrest Dr
County	Del Norte
Dist. to road	600 meters to HWY 101 200 meters to Northcrest
Traffic count	39,000 ADT HWY101 8,222 ADT Northcrest
Groundcover	Paved/grass
PEP audit?	Information maintained by EPA
NPAP audit?	Information maintained by EPA
Flow audit?	monthly
Representative Area	Del Norte County, Micropolitian Statistical Area, Crescent City Urban
Pollutant	PM10
Monitor objective	Typical Concentration
Spatial scale	Neighborhood
Sampling method	High Volume RFPS-1287-063
Analysis method	Weighed by NCUAQMD
Start date	Mar-1998
Operation schedule	1:6
Sampling season	Year round
Probe height	5.5 meters
Distance from supporting structure	1.5 meters
Distance from obstructions on roof	N/A
Distance from obstructions not on roof	N/A
Distance from trees	90 meters
Distance to furnace or incinerator flue	N/A
Distance between collocated monitors	N/A
Unrestricted airflow	360 degrees
Probe material	N/A
Residence time	N/A
Will there be changes within the next 18 months?	No
Is it suitable for comparison against the annual PM2.5?	N/A

Network Assessment

Monitoring Objectives

The monitoring objectives of the North Coast Unified Management District are the same as those found in the Code of Federal Regulations, part 58, appendix D: 1) To determine the highest concentrations expected to occur in the area covered by the network 2) To determine representative concentrations in areas of high population density 3) To determine the impact on ambient pollution levels of significant sources or source categories 4)To determine background concentration levels 5) To determine extent of regional pollution transport among populated area, and in support of secondary standards and 6) To determine welfare-related impacts in more rural and remote areas- such as visibility impairment and effects on vegetation. The domain of responsibility of the NCUAQMD is the three counties which make up the northern portion of the North Coast Air Basin. These objectives are met to the greatest extent allowed by the size and funding of the NCUAQMD agency.

The number of pollutants monitored has increased from 4 in 2005, to 12 in 2010. In 2011, it is expected that NCUAQMD will monitor for over 20 pollutants. This increase in monitoring is directly related to the Districts goal of meeting all objectives listed in CFR part 58.

Monitoring Efficiency

The primary users of the monitoring data are the NCUAQMD itself, users of the ARB ADAM database, users of the EPA Air Quality System, and the County Health Departments of Humboldt, Trinity, and Del Norte Counties. The monitoring data becomes particularly important to the Health departments during times of wildfire. NCUAQMD data has been used to substantiate Health related Federal Declarations of Emergency in both Humboldt and Trinity Counties. These are the only counties within California that have declared emergencies based on air quality data.

The District compares its monitoring data the Federal Ambient Air Quality Standards, and the California State Ambient Air Quality Standards. The California AAQSs are listed in the table below:

Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards [1]		Federal Standards [2]		
		Concentration [3]	Method [4]	Primary [3,5]	Secondary [3,6]	Method [7]
Ozone (O_3)	1 Hour	0.09 ppm (180 µg/m³)	Ultraviolet Photometry	—	Same as Primary Standard	Ultraviolet Photometry
	8 Hour	0.070 ppm (137 µg/m³)		0.075 ppm (147 µg/m³)		
Respirable Particulate Matter (PM10)	24 Hour	50 µg/m³	Gravimetric or Beta Attenuation	150 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	20 µg/m³		—		
Fine Particulate Matter (PM2.5)	24 Hour	No Separate State Standard		35 µg/m³	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean	12 µg/m³	Gravimetric or Beta Attenuation	15.0 µg/m³		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10mg/m³)	Non-Dispersive Infrared Photometry (NDIR)	9 ppm (10 mg/m³)	None	Non-Dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m³)		35 ppm (40 mg/m³)		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m³)		—	—	—
Nitrogen Dioxide (NO_2)	Annual Arithmetic Mean	0.030 ppm (57 µg/m3)	Gas Phase Chemiluminescence	0.053 ppm (100 µg/m³)	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.18 ppm (339 µg/m³)		0.100 ppm (see footnote 8)	None	
Sulfur Dioxide (SO_2)	Annual Arithmetic Mean	—	Ultraviolet Fluorescence	0.030 ppm (80 µg/m³)	—	Spectrophotometry (Pararosaniline Method)
	24 Hour	0.04 ppm (105 µg/m³)		0.14 ppm (365 µg/m³)	—	
	3 Hour	—		—	0.5 ppm (1300 µg/m³)	
	1 Hour	0.25 ppm (655 µg/m³)		—	—	—
Lead [9]	30 Day Average	1.5 µg/m³	Atomic Absorption	—	—	—
	Calendar Quarter	—		1.5 µg/m³	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Rolling 3-Month Average [10]	—		0.15 µg/m³		
Visibility Reducing Particles	8 Hour	Extinction coefficient of 0.23 per kilometer — visibility of ten miles or more (0.07 — 30 miles or more for Lake Tahoe) due to particles when relative humidity is less than 70 percent. Method: Beta Attenuation and Transmittance through Filter Tape.		No Federal Standards		
Sulfates	24 Hour	25 µg/m³	Ion Chromatography			
Hydrogen Sulfide	1 Hour	0.03 ppm (42 µg/m³)	Ultraviolet Fluorescence			
Vinyl Chloride [9]	24 Hour	0.01 ppm (26 µg/m³)	Gas Chromatography			

See footnotes on next page ...

For more information please call ARB-PIO at (916) 322-2990

California Air Resources Board (02/16/10)

1. California standards for ozone, carbon monoxide (except Lake Tahoe), sulfur dioxide (1 and 24 hour), nitrogen dioxide, suspended particulate matter—PM10, PM2.5, and visibility reducing particles, are values that are not to be exceeded. All others are not to be equaled or exceeded. California ambient air quality standards are listed in the Table of Standards in Section 70200 of Title 17 of the California Code of Regulations.
2. National standards (other than ozone, particulate matter, and those based on annual averages or annual arithmetic mean) are not to be exceeded more than once a year. The ozone standard is attained when the fourth highest eight hour concentration in a year, averaged over three years, is equal to or less than the standard. For PM10, the 24 hour standard is attained when the expected number of days per calendar year with a 24-hour average concentration above 150 μg/m3 is equal to or less than one. For PM2.5, the 24 hour standard is attained when 98 percent of the daily concentrations, averaged over three years, are equal to or less than the standard.
Contact U.S. EPA for further clarification and current federal policies.
3. Concentration expressed first in units in which it was promulgated. Equivalent units given in parentheses are based upon a reference temperature of 25°C and a reference pressure of 760 torr. Most measurements of air quality are to be corrected to a reference temperature of 25°C and a reference pressure of 760 torr; ppm in this table refers to ppm by volume, or micromoles of pollutant per mole of gas.
4. Any equivalent procedure which can be shown to the satisfaction of the ARB to give equivalent results at or near the level of the air quality standard may be used.
5. National Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health.
6. National Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.
7. Reference method as described by the EPA. An "equivalent method" of measurement may be used but must have a "consistent relationship to the reference method" and must be approved by the EPA.
8. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm (effective January 22, 2010).
9. The ARB has identified lead and vinyl chloride as 'toxic air contaminants' with no threshold level of exposure for adverse health effects determined. These actions allow for the implementation of control measures at levels below the ambient concentrations specified for these pollutants.
10. National lead standard, rolling 3-month average: final rule signed October 15, 2008.

For more information please call ARB-PIO at (916) 322-2990 California Air Resources Board (02/16/10)

Station Assessment

NCUAQMD operates four monitoring stations. These stations have been summarized in the Network Plan. Assessments of each individual station follow:

Jacobs

This is the only gaseous monitoring station within the NCUAQMD. It measures 6 pollutants. It also has a meteorological station.
PM10: During 2007-2009 conditions exceeded the state standard two times. The highest concentration recorded in that time was 61 ug/m^3.
PM2.5 During 2007-2009, conditions did not exceed the federal standard. The highest concentration recorded in that time was 29.1 ug/m^3.
CO: From 2007-2009, CA AAQSs have not been exceeded.
O3: From 2007-2009, CA AAQSs have not been exceeded.
NOX From 2007-2009, CA AAQSs have not been exceeded.
SO2: From 2007-2009, CA AAQSs have not been exceeded.
This station is used to: establish regulatory compliance, complete emission reduction evaluations, monitor air quality impacts of an emission source, and perform accountability and performance measurements. It is valuable both because of its location downwind of several title five sources, and because it is a full station, allowing for a comparison of the various pollutants at a single location. This station is needed for geographical and population representation. It sample particulates, as does the nearby Eureka Ist location. It consistently measures slightly lower PM levels than does Eureka Ist.

Eureka I Street

Eureka Ist samples two pollutants.
PM10: During 2007-2009 conditions exceeded the state standard two times. The highest concentration recorded in that time was 54 ug/m^3
PM2.5 During 2007-2009, conditions did not exceed the federal standard. The highest concentration recorded in that time was 33.8 ug/m^3.
This station is needed for geographical and population representation, and because of the exceedances of the 24-hr stds for PM10 and PM2.5 This station represents conditions in a large part of the northern half of the North Coast Air Basin. Eureka's population exceeds 26,000 (U.S. Census, 2000). It is used to: establish regulatory compliance, complete emission reduction evaluations, perform trend tracking, historical consistency comparisons and accountability/performance measurements.

Weaverville

The Weaverville Courthouse site is the only monitoring site in Trinity County. It monitors two pollutants:

PM10: During 2007-2009 conditions exceeded the state standard 14 times. The highest concentration recorded in that time was 301.

PM2.5: PM2.5 is measured with a non-FEM continuous method. Data from this unit will be reported in next year's Network Plan.

This station is used to: establish regulatory compliance, complete emission reduction evaluations, and to perform accountability and performance measurements. The station is needed for geographical representation and due to the exceedances of the state 24 hr PM10 std.

Crescent City

The Crescent City Northcrest Drive site is the only monitoring site in Del Norte County. PM10 is the only pollutant monitored.

PM10: During 2007-2009 conditions exceeded the state standard one time. The highest concentration recorded in that time was 49.

This station represents conditions in a large part of the northwestern portion of the North Coast Air Basin. The PM10 monitor is needed for geographical representation. It is used to establish regulatory compliance, evaluate emission reductions, track trends, and assess the effects of air pollution control programs.

Humboldt Hill

This will be a full monitoring station, and is expected to go on line in the summer of 2010. Its primary function is to monitor the air quality impacts of an emission source. It will be located within ten miles of the Jacobs station, however, due to meteorological conditions; the Jacobs station is not suitable to monitor the emissions from this facility. The Humboldt Hill Station will largely employ instruments of the same manufacturer as used at the Jacobs station. This choice will decrease District training and spare part needs.

Mobile Units

NCUAQMD owns one E-BAM. This unit is used primarily during wildfire season. It is also used to investigate air quality complaints. Data from the unit has been used for air quality model evaluation, public reporting of AQI, and air quality impacts of an emission source. While this unit is not FEM, it has proved extremely valuable in assisting NCUAQMD to prepare public service announcements during wildfires.

Conclusions

All monitoring stations are recommended to continue at their current level. All stations are required due to geographical need, or number of parameters measured. Monitoring objectives have been met to the greatest extent allowed by the size and funding of the NCUAQMD agency. The highest pollutant concentrations populations are exposed to are expected to be discovered at the stations. The impact on ambient pollution levels of significant sources or source categories is measured by monitoring downwind of significant contributors of pollution. Background concentration levels are not obtained by the network, due to the existence of major sources prior to the beginning of monitoring, and limitations on monitoring funding. However, a NOAA Observatory is located within the District, which can be leveraged to obtain background levels for some pollutants. The determination of regional pollution transport among populated areas, and in support of secondary standards is beyond current funding constraints upon the District. The District owns one EBAM, and monitoring data from that unit has been used to establish welfare-related impacts in rural and remote areas.

Transition to continuous methods for particulate matter is the highest priority in the NCUAQMD network monitoring plan. This is both to obtain more complete monitoring data, and to reduce costs. The Trinity county location has a continuous PM2.5 measuring system, however it is not FEM. It is hoped to replace the aging unit with an approved continuous FEM as soon as budget constraints will allow. It is further hoped to transition to a continuous PM10 measurement system at this location. The instrument of choice for these conversions can measure both PM2.5 and PM10 simultaneously, thus requiring only one instrument. The technology used for this continuous method is relatively new. The instrument is currently in the process of obtaining 2.5 FEM status (application number 10-096-15). However, the PM10 portion of this instrument is not FEM. It will not go through the FEM approval process for PM10 because it does not have the required 16.7 lpm flow rate. Due to decreased interest by the EPA in PM10, flow requirements for the PM10 approved methods will not be re-evaluated. Because of the reduced interest in PM10, and District interest in having an instrument which does not require frequent service, it is being considered to institute this non-FEM method for continuous PM10 in Weaverville

The Del Norte County location is hoped to institute a continuous FEM PM10 monitor in Crescent City. It is planned to move the existing FEM PM10 continuous monitor from its current location in Weaverville, to Crescent City. (It is currently used as a non-FEM PM2.5 unit). The Eureka Ist station is planned to be maintained as a filter based sampling location, to allow for historical comparisons of data, using a consistent method. The proximity of this station to the NCUAQMD office will not make this a burden on staff time.

If funding allows, the NCUAQMD is interested in transitioning the filter based FRM PM methods to FEM continuous methods at the Jacobs location. This would result in a savings of staff time, and filter analysis costs. The shelter already exists, so the cost to transition would only be for the instrument itself, rather than associated paraphernalia.

The outcome of this transition would be that the network would have both continuous and filter based PM methodology in place in Eureka.

NCUAQMD would like to increase its arsenal of EBAMs. The District lies in an area prone to severe wildfire. NCUAQMD has needed to call on the California Air Resources Board and the California State Forest Service for assistance during every significant wildfire it has experienced. During the wildfires of 2008, the ARB and Forest Service had deployed 7 EBAMs within the district. The overall cost to the state for the ARB and the Forest Service to deploy assistance is far greater than the cost would be for the NCUAQMD to maintain its own EBAMs. NCUAQMD is actively seeking funding for EBAM purchases.

The Executive Office of the North Coast Unified Air Quality Management District hereby approves the "Air Monitoring Network Assessment and Plan for 2010" and direct staff to begin implementation effective immediately.

Mr. Richard L. Martin Jr

7/6/10
date